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Six patients are reported who demonstrated that stones too small for recognition by usual radiologic techniques can be an etiologic factor in recurrent acute pancreatitis. Pancreatitis did not recur after biliary lithiasis was eradicated. The finding of microspheroliths, cholesterol crystals, and calcium bilirubinate pigment by diagnostic biliary drainage supports a decision for biliary tract surgery in these patients. Therefore, for patients having recurrent acute pancreatitis, in whom alcoholism, hyperparathyroidism, hyperlipemia, and other causative factors of pancreatitis are absent, and in whom abnormal inclusions are found in diagnostic biliary drainage, cholecystectomy is justified even though repeated cholecystograms are within normal limits. Cholecystectomy should be performed even though the gallbladder is normal in appearance and to palpation by the surgeon. The common bile duct usually should be explored at the time of cholecystectomy; stones were found in the common bile duct of three of five patients for whom exploration of the common bile duct was performed.


The occurrence of familial medullary carcinoma of the thyroid as a dominant autosomal trait is recorded through three and four generations in two families. Familial medullary carcinoma of the thyroid is considered to be one variety of the medullary thyroid carcinoma—pheochromocytoma syndrome. Other components of this syndrome include the familial and non-familial coexistence of these two lesions and familial pheochromocytomas. Other clinical features of the syndrome include: bilateral presence of both the thyroid carcinoma and pheochromocytomas when present; occasional coexistence of other endocrine lesions including parathyroid tumors, Cushing's syndrome, and diabetes mellitus; and occasional occurrence of neuromas, diarrhea, and symptoms simulating the carcinoid syndrome. The medullary thyroid carcinoma—pheochromocytoma syndrome is considered to be another variety of the multiple endocrine tumor syndromes. It appears to be a distinct entity from the Zollinger-Ellison syndrome. The frequency of bilateral involvement of the thyroid and metastases to cervical lymph nodes justifies total thyroidectomy and lateral neck dissection, modified in accordance with gross findings, for familial medullary carcinoma of the thyroid in the absence of evidence of distant metastases.
Abstracts


Although the lesion usually found in primary hyperparathyroidism is a single parathyroid tumor, evidence for significant abnormalities in multiple parathyroids was found in 15 (21%) of 70 patients with primary hyperparathyroidism. The involvement of multiple parathyroids was due mainly to primary chief cell hyperplasia in patients with or without evidence of other endocrine abnormalities. Although parathyroid adenomas characteristically have a cap of normal parathyroid, the microscopic distinction between some adenomas, primary chief cell hyperplasia, and secondary chief cell hyperplasia is not well defined. The concept is introduced that in hyperparathyroidism there is a basic predisposition for abnormal changes in multiple parathyroids. The necessity for location and individual evaluation of at least four parathyroids at the time of operation for primary hyperparathyroidism is emphasized. The pathologist cannot be expected to provide information from study of frozen sections other than to confirm the presence of parathyroid tissue. Recurrence or persistence of disease can result unless all abnormal parathyroid tissue is removed. The surgeon encounters particular difficulty when one or more parathyroids are normal in size or slightly enlarged, yet are microscopically abnormal. If one or more parathyroids are slightly enlarged or if all parathyroids appear grossly normal in a patient with primary hyperparathyroidism, subtotal parathyroidectomy is advised.


The treatment of hyperthyroidism is under reevaluation because of the high incidence of delayed hypothyroidism and the prolonged time required to achieve the euthyroid state following treatment with radioactive iodine. The problem of determining and controlling the amount of thyroid tissue to eradicate in order to permanently control hyperthyroidism is present with either surgery or radioiodine therapy. Treatment of hyperthyroidism should be individualized, based on age, variety of hyperthyroidism, skill of the physician, and features peculiar to a given patient. Although recurrence of hyperthyroidism and complications are extremely low after operation by experienced surgeons, the simplicity of radioiodine treatment makes it the current standard for therapy for Grave's disease in adults. Certain patients who cannot be expected to seek prolonged follow-up care and patients who are pregnant should be treated surgically. Potential carcinogenic effects of radioiodine therapy remain a deterrent for its use in treating Grave's disease in children, making surgery preferable in this age group. Surgery is the treatment of choice for toxic nodular goiter because correction of hyperthyroidism is prompt and reliable. Also, it is rarely associated with complications since removal of thyroid tissue need not be so extensive. Surgery remains the preferable treatment also for the single nodule producing hyperthyroidism.


A case is presented of diffuse pulmonary fibrosis, in which honeycombing and smooth muscle hypertrophy were prominent. This condition has been given a number of names, the least appropriate of which is bronchiolar emphysema. Literature is reviewed relating to this condition, honeycomb lung, and diffuse interstitial fibrosis. Bronchiolar emphysema is probably not a distinct entity but rather a form of honeycomb lung, which, in most cases, is due to chronic diffuse fibrosing alveolitis, the cause of which is usually not apparent. The use of the term emphysema to describe this condition is misleading and should be abandoned.


Hepatic artery infusion of 5-fluorouracil via transbrachial artery catheter by repeated acute monthly courses has been used in 101 patients. Objective regressions were seen in 39 of 68 patients (59%) with gastrointestinal malignancies; only rare regressions were observed in 41 neoplasms of other primary sites. Twenty patients were treated adequately by prolonged continuous infusion of 5-fluoro-2'-deoxyuridine. Five of these patients obtained objective regressions. This was not a randomized comparative study of the two methods but comprised two separate studies. The acute intermittent program appeared superior to prolonged chronic infusion; however, with the latter method, hematopoietic toxicity was less severe. The use of hepatic artery catheters positioned via the brachial artery has been a practical and effective method of pursuing this form of therapy with the major significant complication, irreversible ischemic changes of the fingers and hand, occurring in only two patients.
Abstracts


Renograms of 52 patients who had renal tissue available for microscopic study or who had a definitive vascular operation with at least one-year postoperative follow-up were selected for comparative evaluation. Sixteen patients had a revascularization procedure with a 12-month or more follow-up. Thirty-six had tissue available for study. Ten had nephrectomy and follow-up. Each renogram should be evaluated independently against normal standards as well as in comparison with the opposite side. Characteristic patterns of ischemia including delay in peak time and delay in descent of the descending limb are described. With one side normal and one abnormal, angiography will often show that renal artery stenosis is responsible for hypertension. When the renogram is abnormal on each side, but asymmetrical, various combinations of large vessel (arteriosclerosis) and small vessel (nephrosclerosis) disease can account for the appearance and angiography is often indicated. Bilaterally symmetrical “roof top” tracings are typical of nephrosclerosis. The use of the renogram to follow the progress of a renal vascular lesion during medical or surgical therapy is illustrated. False positive findings can be produced by a psychogenic response to the test with resultant hypotension. This can ordinarily be recognized but recording of blood pressure during the test is recommended. Faulty probe placement can be identified on the tracing by virtue of inconsistency; both peak time and descending limb should be either normal or abnormal in a given tracing. Usually the renogram will make it possible to predict whether a patient can be cured by a unilateral operation. No false negative examinations were found in this series of cases. The method of selection essentially excluded the inclusion of false positives.


The enigma of physiologic function of the female bladder and urethra is not in how inherent functions of retention and expulsion of urine are accomplished, but in how these functions are wilfully controlled. The perplexity is how man has gained dominance over a basic physiologic function which is activated by smooth muscle and supplied by autonomic nerves. Improved and more sophisticated research has shown that the detrusor passes uninterruptedly to the external urinary meatus; that there is no anatomic sphincter at the urethrovesical junction; and, that the only striated muscle identifiable is in the distal urethra where contact is made with the constricting muscles of the vagina. The theory that the urethrovesical junction has sphincter-like action has been disproved. With normal detrusor function the bladder fills to subjective fullness without increasing vesical or urethral pressures and it does not exhibit spontaneous or provoked detrusor contractions. Some incontinent patients lost urine because of uncontrolled detrusor dyssynergia. In stress urinary incontinence the detrusor function is normal; urine is lost because of a sudden increase in intra-abdominal pressure which is directly transmitted to the bladder and urethra. The sensation of normal urinary urgency is a function of volume and not of increased urethrovesical pressures. In the adult female, under strong urinary urgency, voiding occurs by detrusor contraction; wilful voiding without a sensation of urgency occurs as the result of increased intra-abdominal pressure. The mechanism of wilful inhibition of voiding in the presence of urgency is not known. Contience in the adult female occurs because the detrusor has acquired a remarkable state of asynergia and because she has learned to delicately manipulate urethrovesical pressures through a relatively narrow range of changes.


The methods of light and electron microscopy were used to study the ultrastructure of two cell strains and of the tumors produced by them. Observation of pigmented and non-pigmented tumors and cells is reported. The observation of a variety of granules in cells from a highly homogeneous cell population suggested that they are actually morphological variations of the same granule in the course of their development, rather than characteristic organelles in the different cell types. Extensive variation in the morphology itself of the premelanosomes in the differentiating melanocytes may be entirely normal, in the same manner as normal melanocytes themselves are variable in size and shape. The occurrence, with such regularity, of round bodies with granular matrix and the lamellated bodies in certain forms of the pigment cells lead to the conclusion that they are most probably related to melanin granule development and degradation.
Abstracts


Certain anatomic and pharmacologic observations on the innervation of the heart have been reviewed with particular attention to their relevance to the mechanisms and management of cardiac arrhythmia. It is intended that this review will serve as a midpoint from which further considerations may become more detailed (as in experiments on the cellular membrane action potential) or, conversely, that it will cover broader interrelations (as in experiments on extracardiac factors influencing its rhythm and conduction). Molecular biology is an important new field. But cells do not behave as a homogeneous aggregate of molecules, nor do organs of the body behave as a homogeneous community of cells. It is only by critically collating the results from studies at all the various levels of biologic organization and function that we can hope to understand the normal and abnormal rhythms of the heart.


Autoradiographic studies of the thyroids of 21 patients with a gross autonomous functioning nodule demonstrated similar small or micronodules in 76%. They were also present in four glands in which a large cyst was the dominant nodule. In only 14% of 29 patients with nonfunctioning macronodules were these tiny functioning nodules found. These data suggest that hot macronodules evolve with secretory activity from their origin, but they do not support the hypothesis of a common functional stage for all nodules. Transition from a functioning to a nonfunctioning nodule may occur through degenerative change or possibly by simple loss of functional capacity of the follicles. The appearance of the latter change in our series does not suggest that it can account for a large number of cold nodules. The histologic appearance of the smallest observed functioning nodules has been found to be that previously thought to be associated with the absorption of colloid from a large follicle and the ultimate partition of this follicle into smaller ones in a thyroid under unusual stimulation. The significance of this finding has yet to be determined.


Geriatric gynecology includes a continuation of the gynecologic problems of earlier life as well as problems related to the process of aging. The ovaries have fulfilled their function and they are no longer physiologically active. In most instances the body adjusts naturally to the loss of ovarian function. Emotional problems become increasingly important in senescence. Terminal care deserves careful consideration.


In a Phase I study, kethoxal bis (thiosemicarbazone) (KTS) was given orally to 34 patients who had advanced cancer. Major limiting side effects included reversible paresthesia, myalgia, motor weakness, hallucination, bone marrow depression, nausea, and vomiting. Toxic effects occurred at all dosage levels from 0.1 mg/kg to 12.8 mg/kg but were most consistent and severe at higher dosages. Levels of KTS in serum and urine were dose-related and toxic effects may reflect the quantity of drug absorbed. In contrast to animal studies, delayed hepatic, pancreatic, myocardial, and adrenal toxic effects did not develop. Of 26 patients treated to dose-limiting toxicity, necrosis of a mesothelioma was seen in one patient who had the highest urinary excretory levels.


Localization of the placenta was attempted with the Barnes thermograph and the results of 90 thermoplacentograms in 83 patients are presented. The authors have not found thermography in its present state of refinement to be a reliable method of placental localization. In addition, thermography appears to be least accurate at 32 to 36 weeks gestation, when the diagnosis of placenta previa is most valuable to the obstetrician.
Abstracts


Stenosing and occluding lesions of the major arteries of the abdomen, exclusive of the renal arteries, are illustrated radiologically. Aneurysms were considered only when they contributed to obstruction. A systematic description and radiographic illustration of the stenoses in the aorta, above the level of the renal arteries, between the renal arteries, and below the renal arteries and collateral pathways as demonstrated angiographically are considered. Obstruction is documented of one or both common iliac arteries with or without disease in internal and external iliac vessels. The angiographic appearances of stenosing and occluding lesions of the visceral branches of the aorta including the celiac, superior mesenteric and inferior mesenteric arteries are discussed and illustrated. It is apparent that vascular obstructions in a given area or combination of areas leads to the development of collateral flow patterns which are predictable in general. When the expected pattern does not appear it will be because of obstructive disease in that collateral system itself or the presence of congenital variations in the origins of some of the arteries.


Exudative leukocytes from synovial fluids of patients with several types of arthritis were examined by light microscopy, immunofluorescence, and electron microscopy. The fine structure of these leukocytes and their associated intracellular particles was examined in rheumatoid arthritis, gout, and pseudogout. Immune complexes and crystals served as examples of disease-related particles. A variety of particulate materials was observed within the neutrophils from patients with rheumatoid arthritis. These were segregated in phagosomes. Intraleukocytic crystals of sodium urate observed only in gouty arthritis were frequently not contained within a membrane-bound vacuole. In contrast, crystals of calcium pyrophosphate found only in pseudogout were consistently within membrane-limited vacuoles at their intraleukocytic location. Other particles such as fibrin flakes and cytoplasmic buds shed from the exudative leukocytes were not disease related. Neutrophil granules interacted with each of these intracellular particles. A unifying concept of joint inflammation is presented which illustrates interrelationships between the various types of arthritis when particles serve as the common denominator.


The clinical course of 31 malignant lesions coincidental with abdominal aortic aneurysm, observed among 803 cases of abdominal aortic aneurysms was reviewed. With the help of these observations and with the consideration of published statistics on the survival experiences of curatively treated cancer of the most commonly seen types and of treated and untreated abdominal aortic aneurysms, the following guidelines for surgical treatment were established: The absolute indications for the surgical treatment of aneurysm is the presence of symptoms or rupture. For the surgical treatment of a malignant lesion absolute indications consist of complications such as hemorrhage, perforation, or obstruction. If there is no absolute indication for the treatment of either lesion, first consideration should be given to the aneurysm if it is large, and to the carcinoma if the aneurysm is small. In metastatic malignant disease aneurysmectomy is indicated only if the aneurysm is symptomatic or ruptured, or if an asymptomatic aneurysm is large and the carcinoma is under effective temporary control.


Two hundred and ninety-two lumbar sympathectomies for the treatment of peripheral arterial occlusive disease (PAOD) were evaluated. All cases were advanced (characterized by rest pain and/or pregangrenous and gangrenous tissue changes), and all had had preoperative angiographic studies for the exact determination of the degree of advancement and of the operability of the occlusive lesions. The effectiveness of the surgical procedure
was assessed in terms of success in accomplishing the goal of relieving rest pain (Grade 1 disease), of healing indolent ulcers (or both, Grade 2 disease), and of salvaging limbs destined to amputation (Grade 3 disease). Lumbar sympathectomy provided satisfactory rehabilitation for about 50% of the limbs for 63, 44, and 39 months, on the average, in grade 1, grade 2, and grade 3 PAOD, respectively. An analysis of the many angiographic patterns found in PAOD failed to yield information that would improve the accuracy of case selection for sympathectomy. Every case, unsuited for reconstructive surgical treatment after complete angiographic survey, should be considered for treatment by sympathectomy. Sympathectomy is not recommended for massive gangrene, to raise amputation level, for intermittent claudication, in extreme age and great debility, as a routine to enhance the result of angioplastic operations, or to salvage the result of angioplastic operations.


A 54-year-old man is reported who presented an unusual bone formation over an impacted third molar on radiographs. Dentigerous cysts arise from the odontogenic epithelium surrounding the crown of an impacted or unerupted tooth. Frequently an invasion of the maxillary sinus by the cyst is seen if the cyst is in conjunction with a maxillary impacted third molar tooth.


Phosphate diabetes causes an abnormal formation of dental enamel and dentin. The anatomical variation in tooth formation predisposes bacterial invasion and subsequent degeneration of the dental pulp. Roentgenographically, teeth in patients with phosphate diabetes have extremely large pulp chambers and have a roentgenolucent line beneath the dentino-enamel junction indicating more interglobular dentin than normal in this area. Frequently channels may be found from the pulp chamber to the surface of the enamel.


A preliminary study is reported of human mammary carcinoma on the ultrastructural level. The patient’s tumor had responded favorably to a series of hormonal therapies including androgens, estrogens, progestins and corticoids for recurring nodules over eight years. The pertinent nodule was removed from the region of the gluteal maximus two weeks following stilbesterol therapy. Ultrastructurally, nests of extremely vacuolated, degenerating tumor cells were found to be surrounded by well preserved connective tissue. The mitochondria were altered, the cytoplasm was full of fibrils, and there was a lack of RER and recognizable Golgi apparatus. Frequent mast cells and many cytosomes and phagolysosomes were observed. The most striking features were the autophagic vacuoles which frequently either enclosed bodies with trilaminar membranes, or contained a dense amorphorous substance. Small particles (150 to 300 AU) occurred either free within the cytoplasm, or membrane-bound. The aggregates of cells formed islands of pseudoglandular structure, which possessed numerous microvillus-like extensions of their cytoplasm, which were often filled likewise with amorphous substance. Nothing identifiable with virus particles was seen. Representative electron micrographs are used as illustrations.